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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,264	03/31/2006	Jae Kap Lee	06181/0207506-US0	7194
7278	7590	11/17/2009		
DARBY & DARBY P.C. P.O. BOX 770 Church Street Station New York, NY 10008-0770			EXAMINER MILLER, JR, JOSEPH ALBERT	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 11/17/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/574,264

**Applicant(s)**

LEE ET AL.

**Examiner**

JOSEPH MILLER JR

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/23/2009 has been entered.

### ***Election/Restrictions***

Claims 8 and 9 are directed to an invention that is independent or distinct from the invention originally claimed as noted in previous action.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kley (7,309,446) in view of Linares (2003/0205190).

Kley teaches a diamond shell grown around a form substrate where the substrate may be removed through an opening in the shell (abstract). Kley teaches a "suitably

shaped" (abstract) substrate which can be removed after diamond film growth (col 6, lines 41-52) via CVD (col 6, lines 43-57).

Kley teaches attachment of the substrate to a pedestal using "carbon dag" (i.e. paste) prior to the diamond growth process (col 34, lines 3-7). Kley uses the substrate held on a pedestal with paste to "create a diamond shell with an opening corresponding to the shape of the surface of (the) pedestal" (col 34, lines 8-10). The opening used for etching of the substrates is used for and therefore "corresponds to" the zone that is blocked (col 34, lines 14-16).

Kley does not teach nucleation of diamond on the matrix surface by using diamond powders in an ultrasonic bath.

Linares teaches a system and method for producing synthetic diamond (abstract). Linares teaches that it is known to use diamond powder, agitated in an ultrasonic bath in order to enhance nucleation of diamond [0019]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of agitation with diamond powder taught by Linares with the diamond shell formation method taught by Kley because nucleating diamond before CVD would enable the vapor deposition to proceed more quickly.

Since Kley teaches the blocking of sites from CVD film growth, it would be an obvious choice of one applying the method of Linares to that of Kley to block the sites prior to nucleation. Kley clearly uses the blocking material to form a region where the diamond film does not exist (col 34, lines 8-10), therefore one applying the blocking region prior to nucleation, would have the same effect.

Kley states that the diamond layer may be partially formed and then further processed (by coating or implanting) and reseeded prior to continued growth (col 7, lines 10-18, particularly lines 15-18) – it is clear in this embodiment that the 'zones' would be blocked. It is also suggestive that it would be obvious to block the zones prior to the initial seeding (which Kley is silent on).

Regarding claim 2, Kley teaches that the shell may have a major length axis between 20 microns and about 1 meter - thereby teaching on instant range.

Regarding claim 4, the formations are "ball bearings and the like" (col 2, lines 54-57), clearly spherical shapes.

Regarding claim 5, Kley teaches the use of adhesive to attach the substrates to a pedestal, the use of any alternative adhesive, such as "glue tapes" would be obvious to one of ordinary skill in the art.

Regarding claim 6, Kley teaches an embodiment where the resulting surface corresponds to the (100) plane of diamond lattice (col 26, lines 8-10).

Regarding claim 7, Kley teaches a diamond shell (abstract), it is inherent that a shape has a "geometrical shape".

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kley (7,309,446) in view of Linares (2003/0205190) as applied to claim 1 above and in further view of Pope (2004/01992620).

The teachings of Kley in view of Linares are described above.

Kley does not teach coating the surface with vibration.

Pope teaches a method of diamond coating a surface via CVD and that the surface may be vibrated or rotated during the deposition step [0179]. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the vibration as taught by Pope during the diamond CVD process to the diamond coating process of Jones because it would allow for "all desired surfaces" of the object being coated to become exposed [0179].

### ***Response to Arguments***

As stated in a previous action and not herein repeated, applicant's arguments filed 03/11/2009 over rejections in view of Kley are not persuasive.

Regarding applicant's arguments and affidavit filed 03/11/2009 as was previously noted that the current invention predates that of Kley, applicant does not make it clear what date they are claiming for their invention.

After specifying the date, applicants would have to show due diligence. The MPEP describes requirements for Reasonable Diligence in 2138.06. The introduction states: "The diligence of 35 U.S.C. 102(g) relates to reasonable "attorney-diligence" and "engineering-diligence" (Keizer v. Bradley, 270 F.2d 396, 397, 123 USPQ 215, 216 (CCPA 1959)), which does not require that "an inventor or his attorney ... drop all other work and concentrate on the particular invention involved...." Emery v. Ronden, 188 USPQ 264, 268 (Bd. Pat. Inter. 1974)." See 2138.06 for more information.

Regarding applicant's arguments that the current invention predates that of Kley, the affidavit submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the Kley reference. Applicants have submitted evidence showing the invention dates back to May 28, 2004, however, Kley is entitled to priority back to March 29, 2004, based on the filing of provisional application 60-557,786, 60-550,571 and 60-547,934.

Regarding applicant's arguments and affidavit filed 08/21/2009, the comments were addressed in an advisory action but will herein be repeated for completeness.

The affidavit supplied does not show due diligence for the entirety of the critical period. See MPEP 2138.06 "Reasonable Diligence". The MPEP requires that "the entire period during which diligence is required must be accounted for by either affirmative acts or acceptable excuses. With most recent declaration, the inventors show the conception of the invention (particularly items 1-3 in Second Declaration - submitted 08/21/2009).

In line items 4 and 5 of the Second Declaration provided 08/21/2009, applicants stated that diligence is shown in reduction to practice from the conception of the invention through the filing of the Korea priority document. Diligence to practice is demonstrated only for May, 2004 (Exhibits 3 and 4 submitted March 11, 2009), July, 2004 (Exhibits 7 and 8).

It is noted particularly that: a. the other exhibits are undated; and, b. the following time frames are unaccounted for (with affirmative acts or acceptable excuses):

- i. from the conception until May, 2004;
- ii. from May, 2004 until July, 2004; and,
- iii. from July, 2004 until Korean filing in October, 2004.

Applicants must show diligence during the entire time frame. Since due diligence is not shown, the prior art is not overcome.

Examiner points out that the submittal made with the previous after-final submittal has already been addressed, therefore the same arguments are herein repeated. If applicant has further information and/or affidavits, they may be addressed by another after-final submittal.

### ***Conclusion***

This is a continued examination of applicant's earlier Application No. 10/574,264. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not



mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH MILLER JR whose telephone number is (571)270-5825. The examiner can normally be reached on Mon-Thurs, 7am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOSEPH MILLER JR/  
Examiner, Art Unit 1792

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/Timothy H Meeks/  
Supervisory Patent Examiner, Art Unit 1792